

Appl. No. 09/890,532
Amdt dated Aug. 3, 2005
Reply to Office action of May 5, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

Claims 1-14. (Canceled)

15. (Currently amended) A method for sterilizing vessels, ~~including the excitation of comprising exciting a plasma in an interior region and at an exterior region of a vessel in or on the vessels or on the articles~~ by electromagnetic oscillations, ~~the method comprising the step of wherein~~

~~- spatially and/or chronologically selectively exciting the plasma in various regions which contact walls of the vessel (2) to perform a plasma sterilization~~ the plasma sterilization in the interior region of the vessel and at the exterior region of the vessel are performed at different times by selective excitation of the plasma, the selective excitation of the plasma being effected by separate control of the pressure inside and outside the vessel (2), with the result that the plasma sterilization is performed in various regions of the walls of the vessel (2) in which plasma excitation takes place as a result of a pressure sufficiently below atmospheric pressure.

16. **(Currently amended)** The method of claim 15, further comprising

- carrying the vessel (2) into a chamber (3), in which at least ~~nearly~~ a virtual total vacuum can be produced, and ~~that~~

- ~~carrying~~ supplying a gas suitable for exciting a plasma into the interior region of the vessel (2) via a feed line (7) shielded from the chamber (3), and establishing and maintaining a gas pressure ~~gradient~~ in the interior region of the vessel such that a plasma is excited there and maintained for a predetermined length of time.

17. **(Currently amended)** The method of claim 16, wherein

- said gas pressure ~~gradient~~ and said plasma in the interior region of the vessel (2) are maintained by means of an adequate level of the pressure value in the interior region of the vessel (2) compared to the pressure value in the chamber (3), including with a predetermined outflow of the waste gas from the vessel (2) into the chamber (3) and an ensuing evacuation by suction from the chamber (3) even when there is a predetermined flow of gas out of the vessel (2) into the chamber (3) and an ensuing removal of gas from the chamber (3) by suction.

18. **(Currently amended)** The method of claim 16, further comprising,

- initially evacuating said chamber (3), and then introducing gas into the vessel (2) for exciting the plasma in the interior region of the vessel (2).

19. **(Currently amended)** The method of claim 18, further comprising the step of

- ~~conducting~~ supplying a gas ~~for exciting a plasma~~ into the chamber (3)[[,]] for exciting a plasma in the chamber (3) and thus on the ~~outside~~ exterior region of the vessel (2) as well, with simultaneous extinguishing of the plasma in the interior region of the vessel (2).

20. **(Currently amended)** The method of claim 15, ~~wherein~~ further comprising the steps of

- placing the vessel (2) ~~is carried into a~~ the chamber (3), into which a gas suitable for exciting a plasma is carried, and ~~that~~

- establishing at least a partial vacuum in the interior region of the vessel (2), via a feed line (7) shielded from the chamber (3), ~~an at least partial evacuation can be brought about,~~ and

- establishing and maintaining a gas pressure ~~gradient is established and maintained~~ in the interior region of the vessel (2) such that ~~there~~ a plasma is excited and maintained for a predetermined length of time in the interior region of the vessel (2).

21. **(Currently amended)** The method of claim 20, wherein

- said gas pressure ~~gradient~~ and said plasma in the interior region of the vessel (2) are maintained by making the pressure in the interior region of the vessel (2) sufficiently low compared to ~~an adequate depth of the pressure value relative to the pressure value in the chamber (3), including with a predetermined inflow of the gas from the chamber (3) into the vessel (2) and an ensuing removal by suction from the vessel (2) even when there is a~~

predetermined flow of gas out of the chamber (3) into the vessel (2) and an ensuing removal of gas from the vessel (2) by suction.

22. **(Currently amended)** The method of claim 20, comprising,

- in a first method step, the chamber (3) is supplied with the gas, and
- in a second method step, the vessel (2) is evacuated ~~to the extent that the excitation of~~
until the plasma in the interior region of the vessel is excited as a result of ~~effected via~~ the incoming flow ~~inflow~~ of the gas from ~~out of~~ the chamber (3).

23. **(Currently amended)** The method of claim 22, wherein

- in a third method step, the gas supply into the chamber (3) is stopped, for excitation of a plasma in the chamber (3) and hence on the outside region of the vessel (2) as well, with simultaneous extinguishing of the plasma in the interior region of the vessel (2).

24. **(Currently amended)** An apparatus for sterilizing vessels by the excitation of a plasma in or on the vessels by the spatial and/or chronological selective excitation of the plasma in various regions which contact walls of the vessel, the apparatus comprising,

- a chamber (3),
- a cone (4) ~~that is open on the inside and serves as a vessel mount open which providing~~
a seat for mounting a vessel within said chamber, said cone (4) having a ~~leakage~~ groove (5) on its ~~outside~~ exterior surface[[,]] in the region of the seat of the vessel (2), and having conduit

means ~~connected for communication~~ communicating, via a feed line (7), an interior region of a vessel seated on the cone ~~via a feed line (7)~~, with a gas supply (6) or pump (10) located outside the chamber (3);

- a pump (9) and/or a gas supply (11) connected to the chamber (3); and
- a plasma source (8) mounted on the outside of the chamber (3) and operable to excite plasma in the chamber.

25. **(Currently amended)** The apparatus of claim 24, further comprising

- said ~~leakage~~ groove (5) having means for controlling the gas flowing through said groove between an interior region of a vessel seated on said cone and an interior region of said chamber (3) is controllable with respect to the gas throughput.

26. **(Currently amended)** An apparatus for sterilizing vessels by the excitation of a plasma in or on the vessels by the spatial and/or chronological selective excitation of the plasma in various regions which contact walls of the vessel, the apparatus comprising,

- chain link transportation means for supporting a plurality of vessels for transportation into ~~the~~ a chamber (3), and a duct (23) acting as a suction removal or gas supply rail disposed as a vessel mount, on which the vessels (2) are carried virtually in ~~pressure-tight~~ pressure-tight fashion ~~with a predetermined leakage~~, and said duct (23) being connected ~~for~~ with a gas supply (6) or pump (10) located outside the chamber (3);

- a pump (9) and/or a gas supply (11) connected to said chamber (3); and
- a plasma source (8) mounted on the outside of the chamber (3).

27. **(Currently amended)** An apparatus for sterilizing vessels by the excitation of a plasma in or on the vessels by the spatial and/or chronological selective excitation of the plasma in various regions which contact walls of the vessel, the apparatus comprising,

- a transport box (30) having a plurality of holes (31) therein for receiving and transporting a plurality of vessels (2) into ~~said~~ a chamber (3), and said vessels (2) being seated with their openings virtually in ~~pressure-tight~~ pressure-tight fashion ~~with a predetermined leakage,~~
said transport box (30) including a bottom flange for communication with a gas supply (6) or pump (10) located outside the chamber (3);

- a pump (9) and/or a gas supply (11) connected to the chamber (3); and

- a plasma source (8) mounted on the outside of the chamber (3).

28. **(Currently amended)** The apparatus ~~for performing the method of claim 24,~~ wherein

- the vessels (2) ~~or articles~~ to be sterilized are of glass or plastic.

29. **(Currently amended)** The method of claim 17, further comprising,

- initially evacuating said chamber (3), and then introducing gas into the interior region of the vessel (2) for exciting the plasma in the interior region.

30. **(Canceled)**

31. **(Currently amended)** The method of claim 21, comprising,

- in a first method step, the chamber (3) is supplied with the gas, and
- in a second method step, the vessel (2) is evacuated ~~to the extent that the excitation of~~
until the plasma in the interior region of the vessel is excited as a result of ~~effected via~~ the
incoming flow ~~inflow~~ of the gas from ~~out of~~ the chamber (3).

32. **(Currently amended)** The method of claim 31, wherein

- in a third method step, the gas supply into the chamber (3) is stopped, for excitation of
a plasma in the chamber (3) and hence on the outside region of the vessel (2) as well, with
simultaneous extinguishing of the plasma in the interior region of the vessel (2).